(54) REPRODUCING DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To save time and labor in selecting a desired music.
SOLUTION: A user operates a PLAY key, a skip up key and a skip down key of an operation section 15 to select a desired music. Then, a control section 16 controls a disk reproducing section 11 to reproduce a user's desired music from the music recorded in CD1-1 to CD1-n, inputs present time zone data from a timer section 13, and information, that specifies a music to be reproduced, is made correspond to the reproduced time zone to additionally register the information into a reproducing history information storage section 14. Then, if an AUTO-PLAY key is pressed for an automatic music selection and reproducing instructing operation, the section 16 retrieves the music reproduced in the past in a same time zone by referring to the section 14, controls the section 11 based on the retrieval result and the musics found in the retrieval are reproduced in the order having a higher utilization frequency.

CLAIMS

[Claim(s)]

[Claim 1] The playback means which reads music data in a music data accumulation means, and carries out a playback output including the music data accumulation means which stored much music data according to music, In a regenerative apparatus including the selection actuation means which carries out selection actuation of request music from from while being accumulated in the music data accumulation means, and the playback control means which a playback means will be controlled [control means] if selection actuation is carried out with a selection actuation means, and reproduces request music the time check which performs the time check at the time, when the request music chosen with the means and the selection actuation means is reproduced The information which specifies the playback music in the inside of a music data accumulation means, and the playback hysteresis registration means which match playback time of day or a playback time zone, and a playback hysteresis

information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of automatic song selection playback. A playback control means The regenerative apparatus characterized by making it reproduce in order each music which searched the music which has playback hysteresis in the same time zone as current with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval when automatic song selection playback was directed.

[Claim 2] A playback control means is a regenerative apparatus according to claim 1 characterized by making it reproduce each music which searched the music which has playback hysteresis in the same time zone as current in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, when automatic song selection playback is directed.

[Claim 3] The playback means which reads music data in a music data accumulation means, and carries out a playback output including the music data accumulation means which stored much music data according to music, In a regenerative apparatus including the selection actuation means which carries out selection actuation of request music from from while being accumulated in the music data accumulation means, and the playback control means which a playback means will be controlled [control means] if selection actuation is carried out with a selection actuation means, and reproduces request music the time check which performs the time check at the time, when the request music chosen with the means and the selection actuation means is reproduced The information which specifies playback music in a music data accumulation means, and the playback hysteresis registration means which match playback time of day or a playback time zone, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of the automatic song selection playback including assignment of a time zone. A playback control means The regenerative apparatus characterized by making it reproduce each music which searched the music which has playback hysteresis in the specified time zone with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval in order when automatic song selection playback was directed.

[Claim 4] A playback control means is a regenerative apparatus according to claim 3 characterized by making it reproduce each music which searched the music which has playback hysteresis in the specified time zone in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, when automatic song selection playback is directed.

[Claim 5] The playback means which reads music data in a music data accumulation means, and carries out a playback output including the music data accumulation

means which stored much music data according to music, In a regenerative apparatus including the selection actuation means which carries out selection actuation of request music from from while being accumulated in the music data accumulation means, and the playback control means which a playback means will be controlled [control means] if selection actuation is carried out with a selection actuation means, and reproduces request music the time check which performs the time check at the time, when the request music which selected the song with the means and the selection actuation means is reproduced The information which specifies playback music in a music data accumulation means, and the playback hysteresis registration means which match a playback date or a playback day of the week, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of automatic song selection playback. A playback control means The regenerative apparatus characterized by making it reproduce in order each music which searched the music which has playback hysteresis at the same day of the week as current with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval when automatic song selection playback was directed.

[Claim 6] A playback control means is a regenerative apparatus according to claim 5 characterized by making it reproduce each music which searched the music which has a playback experience at the same day of the week as current in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, when automatic song selection playback is directed.

[Claim 7] The playback means which reads music data in a music data accumulation means, and carries out a playback output including the music data accumulation means which stored much music data according to music, In a regenerative apparatus including the selection actuation means which carries out selection actuation of request music from from while being accumulated in the music data accumulation means, and the playback control means which a playback means will be controlled [control means] if selection actuation is carried out with a selection actuation means, and reproduces request music the time check which performs the time check at the time, when the request music which selected the song with the means and the selection actuation means is reproduced The information which specifies playback music in a music data accumulation means, and the playback experience registration means which match a playback date or a playback day of the week, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of the automatic song selection playback including assignment of a day of the week. A playback control means The regenerative apparatus characterized by making it reproduce each music which searched the music which has playback hysteresis at the specified day of the

week with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval in order when automatic song selection playback was directed.

[Claim 8] A playback control means is a regenerative apparatus according to claim 7 characterized by making it reproduce each music which searched the music which has playback hysteresis at the specified day of the week in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, when automatic song selection playback is directed.

[Claim 9] The playback means which reads music data in a music data accumulation means, and carries out a playback output including the music data accumulation means which stored much music data according to music, In a regenerative apparatus including the selection actuation means which carries out selection actuation of request music from from while being accumulated in the music data accumulation means, and the playback control means which a playback means will be controlled [control means] if selection actuation is carried out with a selection actuation means, and reproduces request music the time check which performs the time check at the time, when the request music which selected the song with the means and the selection actuation means is reproduced The playback hysteresis registration means which matches the information which specifies playback music in a music data accumulation means, playback time, a playback date and a playback time zone, a playback day of the week and playback time of day or a playback day of the week, and a time zone, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of automatic song selection playback. A playback control means The regenerative apparatus characterized by making it reproduce in order each music which searched the music which is the same day of the week as current, and has playback hysteresis in the same time zone with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval when automatic song selection playback was directed.

[Claim 10] A playback control means is a regenerative apparatus according to claim 9 characterized by making it reproduce each music which searched the music which is the same day of the week as current, and has playback hysteresis in the same time zone in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, when automatic song selection playback is directed.

[Claim 11] The playback means which reads music data in a music data accumulation means, and carries out a playback output including the music data accumulation means which stored much music data according to music, In a regenerative apparatus

including the selection actuation means which carries out selection actuation of request music from from while being accumulated in the music data accumulation means, and the playback control means which a playback means will be controlled [control means] if selection actuation is carried out with a selection actuation means, and reproduces request music the time check which performs the time check at the time, when the request music chosen with the means and the selection actuation means is reproduced The playback hysteresis registration means which matches the information which specifies playback music in a music data accumulation means, playback time, a playback date and a playback time zone, a playback day of the week and playback time of day or a playback day of the week, and a time zone, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of the automatic song selection playback including assignment of a day of the week and a time zone. A playback control means The regenerative apparatus characterized by making it reproduce in order each music which searched the music which has playback hysteresis in the day of the week and time zone which were specified with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval when automatic song selection playback was directed. [Claim 12] A playback control means is a regenerative apparatus according to claim 11 characterized by making it reproduce each music which searched the music which has playback hysteresis in the day of the week and time zone which were specified in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, when automatic song-selection playback is directed.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to a regenerative apparatus, and especially, the changer type CD (compact disk) player, the changer type MD (mini disc) player, etc. store much music data according to music, and it relates to the regenerative apparatus reads the music data which correspond according to the playback command of the music of arbitration, and it was made to output.
[0002]
[Description of the Prior Art] The record medium of are recording molds, such as CD, MD, etc. which recorded the music data according to music, is contained to the many

several sheet predetermined record-medium stowage, and the record medium of a user request is taken out, it sets to the playback section, and there is a changer type regenerative apparatus reads the music data of request music from this record medium, and it was made to output. In this changer type regenerative apparatus, if playback is usually directed, the changer section will work and the record medium of the 1st sheet of a record-medium stowage will be first set to ejection and the playback section. And after the playback section is reproduced in order from the 1st music to the last music and playback of the last music finishes, the changer section returns the record medium of the playback section to the original location of a record-medium stowage, next the record medium of the 2nd sheet is set to ejection and the playback section. And after the playback section is reproduced in order from the 1st music to the last music and playback of the last music finishes, the changer section returns the record medium of the playback section to the original location of a record-medium stowage, next the record medium of the 3rd sheet is set to ejection and the playback section. Hereafter, the same actuation is repeated and all the music of all the record media contained by the record-medium stowage is reproduced.

[0003] For example, as shown in a record-medium stowage at <u>drawing 12</u> , n record media 1-1 – 1-n are contained according to the pallet number (PNO) 1 – n. In a record medium 1-1, it is truck number (TNO; tune number) 1-m1. Truck (music), In a record medium 1-2, it is truck number 1-m2. In a truck and a record medium 1-3, it is truck number 1-m3. In a truck, ..., record-medium 1-n, it is truck number 1-mn. If the truck shall be recorded The truck numbers 1 and 2 of a record medium 1-1, ..., m1 Music, the truck numbers 1 and 2 of a record medium 1-2, ..., m2 Music, the tune numbers 1 and 2 of a record medium 1-3, ..., m3 The truck numbers 1 and 2 of music, ..., record-medium 1-n, ..., mn Playback progresses in order of music.

[0004] By the way, it is rare that a user wants to hear all the music of all the record media contained by the record-medium stowage, and it is wanting to hear selectively some music covering desired 1 or two or more desired record media in most cases. Thus, a music feed function is used or a program regenerative function is used to reproduce [user] only specific 1 or two or more specific request music covering desired 1 or two or more desired record media among the all songs covering all the record media contained by the record-medium stowage.

[0005] In the former music feed function, a user's request music, for example The truck number 3 of a record medium 1-2, the truck number 5 of a record medium 1-2, the truck number 1 of a record medium 1-4, the truck number 6 of a record medium 1-7, ..., When it is the truck number 3 of record-medium 1- (n-1), and the truck number 4 of record-medium 1- (n-1), First, after usually directing playback and making playback start from the truck number 1 of a record medium 1-1, Whenever it operates a music delivery key, the playback section searchs the head of the following music of a record medium 1-1, and it reproduces, and is the last truck number m1. If a

music delivery key is operated during playback The changer section returns the record medium of the playback section to the original location of a record-medium stowage, next the record medium 1-2 of the 2nd sheet is set to ejection and the playback section. The playback section starts playback from the truck number 1 the appropriate back. Whenever it operates a music delivery key again here, the playback section searchs the head of the following music of a record medium 1-2, and it reproduces.

[0006] If music delivery directions actuation is stopped in the place skipped to the head of the truck number 3 when the first request music was the truck number 3, the playback section will reproduce the truck number 3. If music delivery is stopped in the place skipped to the head of the truck number 5 according to music delivery directions actuation when the following request music was the truck number 5, it will reproduce to the last of the truck number 5. Then, whenever it operates a music delivery key again, the playback section searchs the head of the following music of a record medium 1-2, and it reproduces, and is the last truck number m2. If a music delivery key is operated during playback, the changer section will return the record medium of the playback section to the original location of a record-medium stowage, next the record medium 1-3 of the 3rd sheet will be set to ejection and the playback section. The playback section starts playback from the truck number 1 the appropriate back. Hereafter, only request music is selectively reproducible by repeating the same actuation.

[0007] On the other hand, the number of the record medium which asks for playback, and the tune number in the inside of this request record medium are made into a group, desired 1 or two or more sets of selection actuation are carried out, and it is made to register with the program store section in order of a program number as program information in the latter program regenerative function. Then, if program playback is directed, the changer section will set to ejection and the playback section first the record medium registered as first program information among record-medium stowages. Next, whether the record medium of the playback section registered as 2nd program information being the same as that of what is set to the current playback section, after it reproduces the music registered as first program information and playback of music finishes, and the music succeedingly registered as first program information when distinguishing and it was the same are reproduced. After playback finishes, the record medium which it distinguished whether the record medium registered as 3rd program information would be the same as that of what is set to current and the playback section, the changer section returned the record medium of the playback section to the original location of a record-medium stowage when not the same, next was registered as 3rd program information is set to ejection and the playback section. The playback section reproduces the music registered as first program information. Hereafter, the same actuation is repeated, and while it was

contained by the record-medium stowage, playback of only specific 1 or two or more specific request music covering desired 1 or two or more desired record media is performed.

[0008] For example, when the group of the record medium with which a user asks for the playback like underline drawing 13 , and a truck number is chosen, playback progresses in order of the truck number 3 of the truck number 3 of a record medium 1-2, the truck number 5 of a record medium 1-2, the truck number 1 of a record medium 1-4, the truck number 6 of a record medium 1-7, ..., record-medium 1- (n-1), and the truck number 4 of record-medium 1- (n-1).

[0009]

[Problem(s) to be Solved by the Invention] Thus, if a music feed function or a program regenerative function is used, only request music can be selectively reproduced out of all the music covering all the record media contained by the record-medium stowage. However, since the music to which a user asks for listening changed with a time zone or days of the week, when a time zone changed or a day of the week changed, it had to do the selection actuation of request music based on a music feed function or a program regenerative function again anew, took time and effort dramatically, and was disadvantage. This invention sets it as the object to offer the regenerative apparatus which can mitigate the time and effort of selection of request music in view of the problem of the above-mentioned conventional technique.

[0010]

[Means for Solving the Problem] The playback means which reads music data in a music data accumulation means, and carries out a playback output in the regenerative apparatus of this invention according to claim 1 including the music data accumulation means which stored much music data according to music, In a regenerative apparatus including the selection actuation means which carries out selection actuation of request music from from while being accumulated in the music data accumulation means, and the playback control means which a playback means will be controlled [control means] if selection actuation is carried out with a selection actuation means, and reproduces request music the time check which performs the time check at the time, when the request music chosen with the means and the selection actuation means is reproduced The information which specifies the playback music in the inside of a music data accumulation means, and the playback hysteresis registration means which match playback time of day or a playback time zone, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of automatic song selection playback. A playback control means Directions of automatic song selection playback are characterized by making it reproduce in order each music which searched the music which has playback hysteresis in the same time zone as current with reference to the playback hysteresis information storage means, controlled the playback means, and

was found out by retrieval. When the request music chosen with the selection actuation means is reproduced according to equipment according to claim 1, If match playback time of day or a playback time zone with the information which specifies the playback music in the inside of a music data accumulation means, the playback hysteresis information storage means is made to memorize and automatic song selection playback is directed Since it was made to reproduce in order each music which searched the music which has playback hysteresis in the same time zone as current with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval If selection actuation of request music is carried out with the selection actuation means for a while at first, after that, automatic song selection playback will only be directed, selection playback of the music reproduced in the time zone same in the past will be carried out automatically, and the favorite music which suited in the present time zone can be reproduced simply. It is characterized by making it reproduce each music which searched with the regenerative apparatus of this invention according to claim 2 the music which has playback hysteresis in the same time zone as current with reference to a playback hysteresis information storage means when automatic song selection playback is directed in order of frequency, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher. Since according to equipment according to claim 2 the music reproduced in the time zone same in the past is automatically chosen in order of frequency and is reproduced, order to listen to the favorite music which suited in the present time zone can be reproduced. the time check which performs the time check at the time in the regenerative apparatus of this invention according to claim 3, when the request music chosen with the means and the selection actuation means is reproduced The information which specifies playback music in a music data accumulation means, and the playback hysteresis registration means which match playback time of day or a playback time zone, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of the automatic song selection playback including assignment of a time zone. A playback control means Directions of automatic song selection playback are characterized by making it reproduce each music which searched the music which has playback hysteresis in the specified time zone with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval in order. When the request music chosen with the selection actuation means is reproduced according to equipment according to claim 3, If the automatic song selection playback which match playback time of day or a playback time zone with the information which specifies the playback music in the inside of a music data accumulation means, and the playback hysteresis information storage means is made to memorize, and includes assignment of a time zone is directed Since it was made to

reproduce each music which searched the music which has playback hysteresis in the specified time zone with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher If selection actuation of request music is carried out with the selection actuation means for a while at first, the automatic song selection playback which includes assignment of a time zone after that will only be directed. Since selection playback of the music reproduced in the time zone which corresponded in the past is carried out automatically, the favorite music heard in the time zone of a request of arbitration can be reproduced simply. In the regenerative apparatus of this invention according to claim 4, the playback control means is characterized by making it reproduce each music which searched the music which has playback hysteresis in the specified time zone in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, if automatic song selection playback is directed. Since according to equipment according to claim 4 the music reproduced in the specified time zone is automatically chosen in order of frequency and is reproduced, order to listen to the favorite music heard in the time zone of a request of arbitration can be reproduced. the time check which performs the time check at the time in the regenerative apparatus of this invention according to claim 5, when the request music which selected the song with the means and the selection actuation means is reproduced The information which specifies playback music in a music data accumulation means, and the playback hysteresis registration means which match a playback date or a playback day of the week, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of automatic song selection playback. A playback control means Directions of automatic song selection playback are characterized by making it reproduce in order each music which searched the music which has playback hysteresis at the same day of the week as current with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval. When the request music chosen with the selection actuation means is reproduced according to equipment according to claim 5, If match a playback date or a playback day of the week with the information which specifies the playback music in the inside of a music data accumulation means, the playback hysteresis information storage means is made to memorize and automatic song selection playback is directed Since each music which searched the music which has playback hysteresis at the same day of the week as current with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval is reproduced in order If selection actuation of request music is carried out with the selection actuation means, since selection playback of the music which, after that, only directs automatic song

selection playback, and was reproduced at the day of the week same in the past will be automatically carried out for a while at first, the favorite music which suited at today's day of the week is reproduced simply. ****** is made. In the regenerative apparatus of this invention according to claim 6, the playback control means is characterized by making it reproduce each music which searched the music which has a playback experience at the same day of the week as current in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, if automatic song selection playback is directed. Since according to the equipment of this invention according to claim 6 the music reproduced at the day of the week same in the past is automatically chosen in order of frequency and is reproduced, order to listen to the favorite music which suited at today's day of the week can be reproduced. the time check which performs the time check at the time in the regenerative apparatus of this invention according to claim 7, when the request music which selected the song with the means and the selection actuation means is reproduced The information which specifies playback music in a music data accumulation means, and the playback experience registration means which match a playback date or a playback day of the week, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of the automatic song selection playback including assignment of a day of the week. A playback control means Directions of automatic song selection playback are characterized by making it reproduce each music which searched the music which has playback hysteresis at the specified day of the week with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval in order. When the request music chosen with the selection actuation means is reproduced according to equipment according to claim 7, If the automatic song selection playback which match a playback date or a playback day of the week with the information which specifies the playback music in the inside of a music data accumulation means, and the playback hysteresis information storage means is made to memorize, and includes assignment of a day of the week is directed Since it was made to reproduce each music which searched the music which has playback hysteresis at the specified day of the week with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval in order If selection actuation of request music is carried out with the selection actuation means, since selection playback of the reproduced music will be automatically carried out for a while at first at the day of the week which only directs the automatic song selection playback which includes the appointed directions after that, and corresponded in the past, the day of the week of a request of arbitration can be made to reproduce the favorite music heard simply. In the regenerative apparatus of this invention according to claim 8, the playback control

means is characterized by making it reproduce each music which searched the music which has playback hysteresis at the specified day of the week in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, if automatic song selection playback is directed. Since according to equipment according to claim 8 the music reproduced at the specified day of the week is automatically chosen in order of frequency and is reproduced, order to listen to the favorite music heard at the day of the week of a request of arbitration can be reproduced. the time check which performs the time check at the time in the regenerative apparatus of this invention according to claim 9, when the request music which selected the song with the means and the selection actuation means is reproduced The playback hysteresis registration means which matches the information which specifies playback music in a music data accumulation means, playback time, a playback date and a playback time zone, a playback day of the week and playback time of day or a playback day of the week, and a time zone, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of automatic song selection playback. A playback control means Directions of automatic song selection playback are characterized by making it reproduce in order each music which searched the music which is the same day of the week as current, and has playback hysteresis in the same time zone with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval. When the request music chosen with the selection actuation means is reproduced according to equipment according to claim 9, The information which specifies the playback music in the inside of a music data accumulation means, playback time or a playback date, and a playback time zone, Or if match a playback day of the week, playback time of day or a playback day of the week, and a time zone, the playback hysteresis information storage means is made to memorize and automatic song selection playback is directed Since it was made to reproduce in order each music which searched the music which is the same day of the week as current, and has playback hysteresis in the same time zone with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval If selection actuation of request music is carried out with the selection actuation means, since selection playback of the music which, after that, only directed automatic song selection playback, is the day of the week same in the past, and was reproduced in the same time zone will be automatically carried out for a while at first, the favorite music which suited in the time zone of the now of the present day of the week can be reproduced simply. In the regenerative apparatus of this invention according to claim 10, the playback control means is characterized by making it reproduce each music which searched the music which is the same day of

the week as current, and has playback hysteresis in the same time zone in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, if automatic song selection playback is directed. Since according to equipment according to claim 10 the music which is the day of the week same in the past, and was reproduced in the same time zone is automatically chosen in order of frequency and is reproduced, order to listen to the favorite music which suited in the time zone of the now of the present day of the week can be reproduced. the time check which performs the time check at the time in the regenerative apparatus of this invention according to claim 11, when the request music chosen with the means and the selection actuation means is reproduced The playback hysteresis registration means which matches the information which specifies playback music in a music data accumulation means, playback time, a playback date and a playback time zone, a playback day of the week and playback time of day or a playback day of the week, and a time zone, and a playback hysteresis information storage means is made to memorize, It has the directions actuation means which carries out directions actuation of the automatic song selection playback including assignment of a day of the week and a time zone. A playback control means Directions of automatic song selection playback are characterized by making it reproduce in order each music which searched the music which has playback hysteresis in the day of the week and time zone which were specified with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval. When the request music chosen with the selection actuation means is reproduced according to equipment according to claim 11, The information which specifies the playback music in the inside of a music data accumulation means, playback time or a playback date, and a playback time zone, Or if the automatic song selection playback which match a playback day of the week, playback time of day or a playback day of the week, and a time zone, and the playback hysteresis information storage means is made to memorize, and includes assignment of the time zone of a day of the week and a time zone is directed Since it was made to reproduce in order each music which searched the music which has playback hysteresis in the day of the week and time zone which were specified with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval The music reproduced in the day of the week and time zone which only direct the automatic song selection playback which, after that, includes assignment of a day of the week and a time zone, and corresponded in the past when carrying out selection actuation of request music with the selection actuation means for a while at first is ****** automatically. Since raw is carried out, the favorite music heard in the day of the week and time zone of a request of arbitration can be reproduced simply. In the regenerative apparatus of this invention according to claim 12, the playback control means is characterized by

making it reproduce each music which searched the music which has playback hysteresis in the day of the week and time zone which were specified in order of frequency with reference to the playback hysteresis information storage means, controlled the playback means, and was found out by retrieval sequentially from the one where frequency is higher, if automatic song-selection playback is directed. Since according to the equipment of this invention according to claim 12 the music reproduced in the day of the week and time zone which were specified is automatically chosen in order of frequency and is reproduced, order to listen to the favorite music heard in the day of the week and time zone of a request of arbitration can be reproduced.

[0011]

[Embodiment of the Invention] Next, the gestalt of one operation of this invention is explained with reference to drawing 1 . Drawing 1 is the block diagram showing the configuration of the changer type CD player concerning this invention. The disk stowage where 10 contains CD 1-1 of n sheets as an are recording data storage means - 1-n according to the pallet number (PNO) 1 - n, and 11 are the disk playback sections, read and output the TOC (Table Of Contents) information recorded on the lead-in groove of CD, or read and output the music signal according to truck recorded on the program field of CD. Moreover, the disk playback section 11 also has the function which reads and outputs the sub-code recorded on CD in parallel with reading of a music signal, and the function which searchs the head location of a request truck and is reproduced. 12 is the changer section which exchanges CDs between the disk stowage 10 and the disk playback section 11, and according to directions of the disk playback section 11, desired CD is set to ejection and the disk playback section 11 out of the disk stowage 10, or it returns CD set to the disk playback section 11 to the original location of the disk stowage 10.

[0012] 13 is the timer section which performs the time check at the time, and outputs the timer information which consists of a current date, time of day (time), a day of the week, and a time zone. Here, a time zone is 4:00 (= 4:00.). Hereafter, it shall be divided into I from being the same (however, 4:00 being included) to 11:00 (11:00 is not included), II(s) from 11:00 (11:00 is included) to 16:00 (16:00 is not included), III(s) from 16:00 (16:00 is included) to 20:00 (20:00 is not included), and IV(s) from 20:00 (20:00 is included) to 4:00 (4:00 is not included).

[0013] 14 is the playback hysteresis information storage section which memorizes various playback hysteresis information, and contains playback hysteresis former data storage area 14A, frequency ranking storage area 14classified by day of the week B, and frequency ranking storage area 14C classified by time zone. In playback hysteresis former data storage area 14A, it is certain truck number (TNO)j (however, the maximum truck number (the maximum tune number) in CD1-i is set to mi) of certain CD1-i (either [however,] i1-n) at the disk playback section 11. j is1-mi. When

reproduced more than one half of one of music, the timer information at the event matches with the group data (i, j) of the pallet number and truck number which are the information for specifying music, and it memorizes as playback hysteresis former data (refer to drawing 2). On the other hand, for the playback hysteresis former data memorized by playback hysteresis former data storage area 14A, the playback frequency for every music is totaled according to a day of the week, and the frequency ranking information classified by day of the week that music was put in order is memorized by order with high frequency at frequency ranking storage area 14classified by day of the week B (refer to drawing 3 and drawing 4). Moreover, for the playback hysteresis former data memorized by playback hysteresis former data storage area 14A, the playback frequency for every music is totaled according to a time zone, and the frequency ranking information classified by time zone that music was put in order is memorized by order with high frequency at frequency ranking storage area 14C classified by time zone (refer to drawing 5 and drawing 6).

[0014] The PLAY key for 15 being a control unit and usually carrying out reproductive directions actuation, The skip down key for carrying out music return directions actuation to the skip rise key for carrying out music delivery directions actuation to the following music, and front music, AUTO-PLAY for carrying out the STOP key for carrying out stop order actuation, and automatic song selection playback directions actuation It has the day-of-the-week key for carrying out assignment actuation of the day of the week of a key, Mon.-Sun., and the time zone key which carries out assignment actuation of time zone I-IV. 16 is the control section of a microcomputer configuration, and if selection actuation of request music is carried out by actuation of the PLAY key, a skip rise key, and a skip down key, in the all songs which controlled the disk playback section 11 and were recorded on CD 1-1 – 1-n, it will read and it will carry out the playback output of the music data of request music. And playback hysteresis former data storage area 14A of the playback hysteresis information storage section 14 is made to memorize the playback historical data which matched the group data (i, j) of the pallet number (PNO) i and the truck number (TNO; tune number) j which are the information which specifies the reproduced request music concerned with the timer information at the event (a date, time, a day of the week, time zone), and additional registration is carried out. It is aimed at all the playback hysteresis former data memorized by playback hysteresis former data storage area 14A. Under the present circumstances, according to a day of the week Total the playback frequency for every music and frequency ranking storage area 14classified by day of the week B is made to memorize the frequency ranking information classified by day of the week arranged in order of frequency. Moreover, the playback frequency for every music is totaled according to a time zone, and frequency ranking storage area 14C classified by time zone is made to memorize the frequency ranking information classified by time zone arranged in order of frequency for all the playback

hysteresis former data memorized by playback hysteresis former data storage area 14A.

[0015] Moreover, the control section 16 is AUTO-PLAY. If automatic song selection playback directions actuation is carried out by actuation of a key, when neither a day-of-the-week key nor a time zone key will be operated in fixed time amount after that The music which has playback hysteresis at the day of the week which the timer information at the event shows for the content of storage of the playback hysteresis information storage section 14 is searched. If each music which controlled and searched the disk playback section 11 will be reproduced in order if there is corresponding music, the music which has playback hysteresis in the time zone which the timer information at the event shows is searched when there is no corresponding music, and there is corresponding music, each music which controlled and searched the disk playback section 11 will reproduce in order. It differs from this and is AUTO-PLAY. After automatic song selection playback directions actuation was carried out by actuation of a key, When assignment actuation of a request day of the week (it is a request time zone at a time zone key) is carried out by the day-of-the-week key into fixed time amount If the music which has playback hysteresis at the appointed day of the week (appointed time zone) for the content of storage of the playback hysteresis information storage section 14 is searched and there is corresponding music, each music which controlled and searched the disk playback section 11 will be reproduced in order.

[0016] Drawing 7 - drawing 11 are flow charts which show the playback control processing by the control section 16, and explain actuation of the above-mentioned gestalt of operation with reference to these drawings hereafter. in addition, finishing [stowage / 10 / disk / receipt of CD / 1-1 / - 1-n] to pallet number (PNO) 1-n — it is — each CD1-i (i=1-n) — each — the truck number 1 - mi up to — music shall be recorded and suppose that it is n= 10, m1 =5, and m2 -m10=10 as an example here. Moreover, the disk shall not be set to the disk playback section 11 at first.

[0017] (1) If selection and playback of request music, and the power source of the registration set of playback historical data turn on, the control section 16 will be set to i= 1 which shows the present pallet number (step S10 of drawing 7). If the PLAY key is pressed in order to choose request music by the user The control section 16 is treated as that as which the music of the beginning of CD 1-1 of the pallet number 1 of the disk stowage 10 was chosen for the time being. After clearing the flag A which sets to j= 1 which shows a current truck number, and shows whether it is registered in playback historical data about the music under playback (steps S11 and S12), The exchange command to the disk of the pallet number 1 and the reading command of TOC information are given to the disk playback section 11. First, the disk playback section 11 is directed in the changer section 12, and makes CD 1-1 of the pallet number 1 set to ejection and the disk playback section 11 among the disk stowages 10

based on an exchange command (step S13).

[0018] Then, according to the reading command of TOC information, the disk playback section 11 reads TOC information in the lead-in groove of CD 1-1, outputs it to the control section 16, and memorizes the control section 16 to an internal memory (not shown) (step S14). And with reference to TOC information, the maximum truck number (=m1 =5) of CD 1-1 is registered as J (step S15). Next, the control section 16 gives the search command containing the head location data (absolute time) of the truck number 1 as a search target position to the disk playback section 11, and based on this command, the disk playback section 11 searchs the head of the truck number 1, and it starts the playback after a search (step S16). Thereby, the music signal of the music of the beginning of the disk of the 1st sheet is reproduced. The disk playback section 11 outputs during playback the performance elapsed time in the sub-code read from CD 1-1 to the control section 16.

[0019] Thus, when the PLAY key was pressed and a skip rise key, a skip down key, or the STOP key is pressed before reproducing the one half of music although playback of the music concerned is made to start noting that the music of the beginning of CD 1-1 of the pallet number 1 of the disk stowage 10 is chosen for the time being, the control section 16 treats the music concerned noting that it is not chosen. Namely, after playback initiation of the music of the truck number 1, since the control section 16 is A= 0, performance elapsed time is inputted from the disk playback section 11. With whether it collated with the TOC information read previously, and playback went to the one half of the music of the truck number 1, and it checking While the music under current playback distinguishes whether it is the music which the user chose as request music truly, it distinguishes whether the request music concerned was reproduced actually (steps S17 and S18). Supposing it checks (steps S30 and S40 of drawing 8) and is NO, whether while playback was not going to the one half of music, it was judged as NO, and it progressed to the flow of drawing 8 , and the skip rise key was pressed, or the skip down key was pressed still Then, it is confirmed whether collated with the TOC information which inputted absolute time and read it in the disk playback section 11 previously, and playback of the music of the truck number 1 finished (step S50). Here, since it is NO, it confirms whether the STOP key was pressed (step S51), and supposing it is NO, return and the same processing will be repeated to step S17 of drawing 7 .

[0020] In fact, although what is necessary is just to continue playback as it is if the music of the truck number 1 of CD 1-1 is request music for a user, when it is not request music but request music with the true truck number 2, in order that it may choose this request music, the truck number 1 presses a skip rise key once, and carries out music delivery directions actuation. Then, the control section 16 judges it as YES at step S30 of drawing 8 , and since the truck number j under present playback is not the truck number J of the last of CD 1-1 (= 5) Set j to 2 and A= 0 (steps S31

and S32), and the search command containing the head location data (absolute time) of the truck number 2 as a search target position is given to the disk playback section 11. Based on this command, the disk playback section 11 searchs the head of the truck number 2, and starts the playback after a search (step S16). Thereby, the music signal of the 2nd music of the disk of the 1st sheet which is a user's request music is reproduced.

[0021] After playback initiation of the music of the truck number 2, since the control section 16 is A= 0, it is confirmed whether collated with the TOC information which inputted performance elapsed time and read it in the disk playback section 11 previously, and playback went to the one half of the music of the truck number 2 (steps S17 and S18). If playback goes to the one half of the music of the truck number 2, without a user operating each of skip rise keys, skip down keys, and STOP keys, the control section 16 will judge it as YES at step S18, and the music under current playback will judge that a user is the music chosen as request music, and reproduced the request music concerned actually truly. The timer information which expresses a current date, time, a day of the week, and a time zone from the timer section 13 is inputted, and playback hysteresis former data storage area 14A is made to add and memorize the playback hysteresis former data matched with group data (i, j) = (1 2) of the pallet number i under current playback (= 1), and the truck number j (= 2) at this time (step S19.). Refer to drawing 2 (1).

[0022] It is aimed at all the playback hysteresis former data memorized by playback hysteresis former data storage area 14A. And according to a day of the week Total the playback frequency for every music and frequency ranking storage area 14classified by day of the week B is made to memorize the frequency ranking information classified by day of the week arranged in order of frequency. Moreover, the playback frequency for every music is totaled according to a time zone, and frequency ranking storage area 14C classified by time zone is made to memorize the frequency ranking information classified by time zone arranged in order of frequency for all the playback hysteresis former data memorized by playback hysteresis former data storage area 14A (refer to step S20, drawing 3 , and drawing 5). And it is referred to as A= 1 in order to show that it is registered in playback hysteresis information per music under current playback (step S21).

[0023] If set to A= 1, the control section 16 will judge it as NO at step S17, and it progresses to the flow of drawing 8 , without progressing to step S18. It confirms whether it was j=J (step S52), and since it is NO, step S17 of drawing 7 is made to continue return and playback which it treats noting that a user also chooses the music of the following truck number 3, and is the music of the truck number 3 for the time being at the disk playback section 11, after playback finishes to the last of the music of the truck number 2 as it is (it is YES at step S50), using j as 3 and A= 0 (step S53).

[0024] In fact, although what is necessary is just to continue playback as it is if the music of the truck number 3 of CD 1-1 is request music for a user, when it is not request music but request music with the true truck number 4, in order that it may choose this request music, the truck number 3 presses a skip rise key once, and carries out music delivery directions actuation. Then, the control section 16 judges it as YES at step S30 of <u>drawing 8</u> , sets j to 4 and A= 0 (steps S31 and S32), makes the disk playback section 11 search the head of the truck number 4, and makes the playback after a search start (step S16 of <u>drawing 7</u>). Thereby, the music signal of the 4th music of the disk of the 1st sheet which is a user's request music is reproduced.

[0025] If playback goes to the one half of the music of the truck number 4, the control section 16 will judge it as YES at step S18, and the music under current playback will judge that a user is the music chosen as request music, and reproduced the request music concerned actually truly. The timer information which expresses a current date, time, a day of the week, and a time zone from the timer section 13 is inputted, and playback hysteresis former data storage area 14A is made to add and memorize the playback hysteresis former data matched with group data (i, j) = (1 4) of the pallet number i under current playback, and the truck number j at this time (step S19.). Refer to <u>drawing 2</u> (1).

[0026] And after dividing all the playback hysteresis former data memorized by playback hysteresis former data storage area 14A according to a day of the week, Total the playback frequency for every music and frequency ranking storage area 14classified by day of the week B is made to memorize the frequency ranking information classified by day of the week arranged in order of frequency. Moreover, after dividing all the playback hysteresis former data memorized by playback hysteresis former data storage area 14A according to a time zone, the playback frequency for every music is totaled, and frequency ranking storage area 14C classified by time zone is made to memorize the frequency ranking information classified by time zone arranged in order of frequency (refer to step S20, <u>drawing 3</u> , and <u>drawing 5</u>). And it is referred to as A= 1 in order to show that it is registered in playback hysteresis information per music under current playback (step S21).

[0027] After playback finishes to the last of the music of the truck number 4 (it is YES at step S50), confirm whether it was j=J (step S52), and since it is NO here, j by returning to step S17 of <u>drawing 7</u> as 5 and A= 0 He treats noting that a user also chooses the music of the following truck number 5, and he makes the disk playback section 11 continue playback of the music of the truck number 5 for the time being (step S53). Here, for a user, when not request music but the music of the truck number 1 of the pallet number 2 is true request music, in order that the truck number 5 may choose this request music, it presses a skip rise key once and carries out music delivery directions actuation.

[0028] The control section 16 judges it as YES at steps S30 and S31 of <u>drawing 8</u> with

press of a skip rise key, and since it is not i=n (it is NO at step S33), i is set to 2 and j is set to 1 and A= 0 (step S35), and it is returning to step S13 of <u>drawing 7</u> , and it treats noting that a user also chooses the music of the beginning of the following disk for the time being. At step S13, the exchange command to the disk of the pallet number 2 and the reading command of TOC information are given to the disk playback section 11. First, the disk playback section 11 is directed in the changer section 12, and makes CD 1-2 of the pallet number 2 set to ejection and the disk playback section 11 among the disk stowages 10 based on an exchange command. Then, according to the reading command of TOC information, TOC information is read in the lead-in groove of CD 1-2, it outputs to the control section 16, and the control section 16 is memorized to an internal memory (not shown) (step S14). And with reference to TOC information, the maximum truck number (= m2) of CD 1-2 is registered as J (step S15). Next, the control section 16 gives the search command containing the head location data (absolute time) of the truck number 1 as a search target position to the disk playback section 11, and based on this command, the disk playback section 11 searchs the head of the truck number 1, and it starts the playback after a search (step S16). Thereby, the music signal of the music of the beginning of the disk of the 2nd sheet is reproduced.

[0029] After playback initiation of the music of the truck number 1, since the control section 16 is A= 0, it is confirmed whether collated with the TOC information which inputted performance elapsed time and read it in the disk playback section 11 previously, and playback went to the one half of the music of the truck number 1 (steps S17 and S18). While playback is not going to the one half of music, it is still judged as NO. It is confirmed whether collated with whether at this time, it progressed to the flow of <u>drawing 8</u> and the skip rise key was pressed or the skip down key was pressed, and the TOC information that continued, inputted absolute time and read it in the disk playback section 11 previously supposing it checked (steps S30 and S40 of <u>drawing 8</u>) and was NO here, and playback of the music of the truck number 1 finished (step S50). Here, since it is NO, it confirms whether the STOP key was pressed (step S51), and supposing it is NO here, return and the same processing will be repeated to step S17 of <u>drawing 7</u> .

[0030] When the skip rise key has been pressed once by mistake before reproducing the one half of the music of the truck number 1, the control section 16 judges it as YES at step S30 of <u>drawing 8</u> , sets j to 2 and A= 0 (steps S31 and S32), makes the disk playback section 11 search the head of the truck number 2, and makes the playback after a search start (step S16). The playback of the 1st music of a disk of the 2nd sheet which is a user's request music is interrupted by this, and the 2nd music is reproduced.

[0031] A user listens to the music of the truck number 2, and he notices that it is not request music, and when it turns out that the truck number 1 in front of one was

request music, a skip down key is pressed once and music return directions actuation is carried out. Then, the control section 16 judges it as YES at step S40 of drawing 8 , and since the truck number j under present playback is not the truck number 1 of the beginning of CD 1-2 Set j to 1 and A= 0 (steps S41 and S42), and the search command containing the head location data (absolute time) of the truck number 1 as a search target position is given to the disk playback section 11. Based on this command, the disk playback section 11 searchs the head of the truck number 1, and starts the playback after a search (step S16). Thereby, the music signal of the music of the beginning of the disk of the 2nd sheet which is a user's request music is reproduced.

[0032] If playback goes to the one half of the music of the truck number 1, the control section 16 will judge it as YES at step S18. The timer information which expresses a current date, time, a day of the week, and a time zone from the timer section 13 is inputted. Playback hysteresis former data storage area 14A is made to add and memorize the playback hysteresis former data matched with group data (i, j) = (2 1) of the pallet number i under current playback (= 2), and the truck number j (= 1) (step S19.). Refer to drawing 2 (1). And total the frequency ranking classified by day of the week for all playback hysteresis former data, and frequency ranking storage area 14classified by day of the week B is made to memorize, and the frequency ranking classified by time zone is totaled, and frequency ranking storage area 14C classified by time zone is made to memorize (refer to step S20, drawing 3 , and drawing 5). And it is referred to as A= 1 in order to show that it is registered in playback hysteresis information per music under current playback (step S21).

[0033] If set to A= 1, the control section 16 will judge it as NO at step S17, and it progresses to the flow of drawing 8 , without progressing to step S18. After playback finishes to the last of the music of the truck number 1 as it is (it is YES at step S50), check (step S52), and since it is NO here, whether it was j=J It treats noting that a user also chooses the music of the following truck number 2, and the disk playback section 11 is made to continue playback of the music of the truck number 2 for the time being by returning to step S17 of drawing 7 considering j as 2 and A= 0 (step S53). Here, the STOP key is pressed when request music does not have the music of the truck number 2 of CD 1-2 in the others instead of request music for a user, either. Then, the control section 16 judges it as YES at step S51 of drawing 6 , gives a halt command to the disk playback section 11, and stops playback of CD 1-2 (step S54).

[0034] By thus, actuation of the PLAY key, a skip rise key, and a skip down key If the music of the truck numbers 2 and 4 of CD 1-1 which is a user's request music, and the truck number 1 of CD 1-2 is chosen and it is made to reproduce While the playback hysteresis former data which matched the information (a pallet number, truck number) which specifies playback music in the playback hysteresis information storage section 14, and timer information are memorized, the playback frequency ranking for every music divided according to the day of the week and the playback

frequency ranking for every music divided according to the time zone are memorized.

[0035] In addition, after pressing the PLAY key, the music of the arbitration recorded on CD 1-1 - CD 1-10 like the above-mentioned in the skip rise key or the skip down key by the proper thing to do for count actuation can be chosen, and it can be made to reproduce, although explained by the above-mentioned explanation that the truck numbers 2 and 4 of CD 1-1 and the truck number 1 of CD 1-2 were request music. For example, since the control section 16 will judge it as YES at step S30 of drawing 8 , and will judge it as NO by S31, j will be incremented and it will progress to step S16 of drawing 7 as A= 0 if it is j<J (=mi) when a skip rise key is pressed during playback of the music of the truck number j of CD1-i (step S32), playback of the next music of the same CD1-i is started. Since the control section 16 will judge it as YES at steps S30 and S31 of drawing 8 if it is j=J (= mi), i will be incremented if it is not i=n and it progresses to step S13 of drawing 7 as j= 1 and A= 0 when a skip rise key is pressed (it is NO and S35 at step S33), playback of the music of the beginning of following CD1- (i+1) is started. Since the control section 16 will judge it as YES at steps S30, S31, and S33 of drawing 8 and it will progress to step S13 of drawing 7 as i= 1, j= 1, and A= 0 if it is j=J (=mi) and i=n when a skip rise key is pressed (step S34), playback of the music of the beginning of CD 1-1 of the 1st sheet is started.

[0036] Moreover, since the control section 16 will judge it as YES at step S40 of drawing 8 , and will judge it as NO by S41, the decrement of the j will be carried out and it will progress to step S16 of drawing 7 as A= 0 if it is 1<j when a skip down key is pressed during playback of the music of the truck number j of CD1-i (step S32), playback of the music in front of [of the same CD1-i] one is started. Since the control section 16 will judge it as YES at steps S40 and S41 of drawing 8 if it is j= 1, the decrement of the i will be carried out if it is not i= 1 and it progresses to step S13 of drawing 7 as j=n and A= 0 when a skip down key is pressed (it is NO and S45 at step S43), playback of the music of the last of CD1- in front of one (i-1) is started. Since the control section 16 will judge it as YES at steps S40, S41, and S43 of drawing 8 and it will progress to step S13 of drawing 7 as i=n, j=n, and A= 0 if it is j= 1 and i= 1 when a skip down key is pressed (step S44), playback of the music of the last of CD 1-10 of the 10th sheet is started. The following is explained as what the content of storage of the playback hysteresis information storage section 14 became like drawing 2 (2), drawing 4 , and drawing 6 , as a result of choosing request music and making it reproduce as the user mentioned above in various time zones of various days of the week. In drawing 4 and drawing 6 , when different music is the same playback frequency, it has considered as the same frequency ranking (the frequency ranking 1 on Monday of drawing 4 , the frequency ranking 3 on Tuesday, the frequency ranking 2 on Friday, and the frequency ranking 1 of the time zone III of drawing 6 correspond).

[0037] (2) When a song is selected automatically and you want to reproduce the music reproduced in a day of the week, the same current day of the week as a time zone, or

a current time zone based on playback hysteresis information when the assignment-less user of an automatic song selection playback-day of the week and a time zone selects a song and reproduces request music in the past, it is AUTO-PLAY at a idle state. A key is pressed. Then, it is confirmed whether the control section 16 judged it as YES at step S60 of drawing 9 noting that automatic song selection playback directions actuation was carried out, then the day-of-the-week key was pressed into fixed time amount, day-of-the-week assignment actuation was carried out, or the time zone key was pressed, and time zone assignment actuation was carried out (step S61). If neither is carried out, it progresses to the flow of drawing 11 , the timer information which the timer section 13 is outputting is inputted, and a present day of the week and a present time zone are registered into an internal memory (step S80).

[0038] And the music which had reproduced with reference to the content of storage of the playback hysteresis information storage section 14 at the same day of the week as a current day of the week in the music reproduced according to song selection actuation of a user in the past is searched (step S81). Processing of step S81 is performed using the frequency ranking information classified by day of the week memorized by frequency ranking storage area 14classified by day of the week B, and when there are two or more information which specifies music in case there is corresponding music, and corresponding music, the sequence that frequency is high etc. understands it. In addition, it is aimed temporary at all the playback hysteresis former data of playback hysteresis former data storage area 14A when frequency ranking classified by day of the week is not totaled in advance. From the date data or day-of-the-week data in playback hysteresis former data, the music reproduced at the same day of the week as the present day of the week is searched, and it registers with the internal memory (when there is two or more music found out by the retrieval concerned, playback frequency is totaled for every music, and it arranges in order of frequency, and registers with the internal memory).

[0039] It is confirmed whether the control section 16 had one or more music of music which had reproduced based on the retrieval result at the same day of the week as a current day of the week following step S81 (step S82). When the present day of the week is Wednesday, like drawing 4 , the music of = (the pallet number i, the truck number j) (7 1), (4, 6), (8, 2), (3, 5), and .. corresponds to order with high playback frequency, and it is judged as YES. After registering as H the number of music which had reproduced the control section 16 at the same day of the week as the present day of the week at this time (step S65 of drawing 9), the disk playback section 11 is controlled and it is made to reproduce in order with high frequency (steps S66–S76 of drawing 10).

[0040] In order to reproduce music with the concrete first highest frequency, k which shows the playing order seen in order of frequency is set to 1 (step S66 of drawing

10), and it sees in order of frequency among the music found out by retrieval this time, and let specific information of the k-th music be (the pallet number ik and the truck number jk). It is set to ik =7 and jk =1 at the time of k= 1 (step S67). Next, it is the pallet number ik to current and the disk playback section 11. CD1-ik Supposing it judges whether it is already set settled (step S68) and is NO here, it is the pallet number ik to the disk playback section 11. CD1-ik The exchange command to a disk and the reading command of TOC information are given. First, the disk playback section 11 is directed in the changer section 12, and makes CD 1-7 of the pallet number 7 set to ejection and the disk playback section 11 among the disk stowages 10 based on an exchange command (step S69). Then, according to the reading command of TOC information, TOC information is read in the lead-in groove of CD 1-7, it outputs to the control section 16, and the control section 16 is memorized to an internal memory (not shown) (step S70). Next, the control section 16 gives the search command containing the head location data (absolute time) of the truck number 1 as a search target position to the disk playback section 11, and based on this command, the disk playback section 11 searchs the head of the truck number 1, and it starts the playback after a search (step S71). Thereby, the music signal of the music of the beginning of the disk of the 7th sheet is reproduced.

[0041] It is confirmed whether after playback initiation of the music of the truck number 1, the control section 16 collated with whether the STOP key was pressed and the TOC information which continued supposing it checked (step S72) and was NO here, inputted absolute time and read it in the disk playback section 11 previously, and playback of the music of the truck number 1 finished it (step S73). Return and the same processing are repeated to step S72 also here at the time of NO. Then, after playback finishes to the last of the music of the truck number 1 (it is YES at step S73) The control section 16 gives a halt command to the disk playback section 11, and stops playback actuation (step S74). Whether it was k=H and in order to check (step S75), to see in order of frequency return and shortly to step S67 and to reproduce the 2nd music, after incrementing k and being referred to as 2 (step S76) since it is NO here, It exchanges for CD 1-4, and the music of the truck number 6 is reproduced (step 68- S71).

[0042] If playback of the music of the truck number 6 of CD 1-4 finishes, it will exchange for CD 1-8, and the music of the truck number 2 will be reproduced, and if playback of the music of the truck number 2 of CD 1-8 finishes, it exchanges for CD 1-3, is made condition of reproducing the music of the truck number 5, and is made to reproduce in order. And a halt command is given to the disk playback section 11, playback actuation is stopped (it is YES and S77 at steps S72 or S75), and this automatic song selection regeneration is finished in the place where it saw in order of frequency at, and playback of the Hth music finished at, or the STOP key was pressed. Thus, AUTO-PLAY If a key is pressed and automatic song selection playback

directions actuation is carried out, since the music reproduced at the day of the week same in the past as the present will be automatically chosen in order of frequency and will be reproduced, even if a user does not impose the time and effort of song selection actuation at all, he can reproduce order to listen to the favorite music which suited at the present day of the week.

[0043] In addition, when set to NO at step S82 of <u>drawing 11</u>, the music which had reproduced in the same time zone as the present time zone is searched in the music reproduced according to song selection actuation of a user with reference to the content of storage of the playback hysteresis information storage section 14 in the past (step S83). Processing of step S83 is performed using the frequency ranking information classified by time zone memorized by frequency ranking storage area 14C classified by time zone, and when there are two or more information which specifies music in case there is corresponding music, and corresponding music, the sequence that frequency is high etc. understands it. In addition, it is aimed temporary at all the playback hysteresis former data of playback hysteresis former data storage area 14A when frequency ranking classified by time zone is not totaled in advance. From the time data (time-of-day data) or time zone data in playback hysteresis former data The music reproduced in the same time zone as the present time zone is searched, and it registers with the internal memory (when there is two or more music found out by the retrieval concerned, playback frequency is totaled for every music, and it arranges in order of frequency, and registers with the internal memory).

[0044] It is confirmed whether the control section 16 had one or more music of music which had reproduced in the same time zone as a current time zone based on the retrieval result following step S81 (step S82). the present time zone ── for example, III of 16:00-20:00 it is ── the time ── order with playback frequency high like <u>drawing 6</u> ── = (the pallet number i, the truck number j) (5 6) ── (── the music of 1, 4), (2, 4), (1, 3), and .. corresponds, and it is judged as YES. After registering as H the number of music which had reproduced the control section 16 in the same time zone as the present time zone at this time (step S65 of <u>drawing 9</u>), the disk playback section 11 is controlled like the above-mentioned, and it is made to reproduce in order with high frequency (steps S66-S76 of <u>drawing 10</u>).

[0045] Namely, exchange for CD 1-5 first, and the music of the truck number 6 is reproduced. If playback of the music of this truck number 6 finishes, will exchange for CD 1-1 and the music of the truck number 4 will be reproduced. If playback of the music of this truck number 4 finishes, it will exchange for CD 1-2, and the music of the truck number 4 will be reproduced, and if playback of the music of this truck number 4 finishes, it exchanges for CD 1-1, is made condition of reproducing the music of the truck number 3, and is made to reproduce in order. And a halt command is given to the disk playback section 11, playback actuation is stopped (it is YES and S77 at steps S72 or S75), and this automatic song selection regeneration is finished in the place

where it saw in order of frequency at, and playback of the Hth music finished at, or the STOP key was pressed. Thus, since the music reproduced in the time zone same in the past as the present is automatically chosen in order of frequency and is reproduced, even if a user does not impose the time and effort of song selection actuation at all, he can reproduce order to listen to the favorite music which suited in the present time zone.

[0046] (3) When a song is selected automatically and you want to reproduce the music reproduced at the request day of the week based on playback hysteresis information when a user with automatic song selection playback-day-of-the-week assignment selects a song and reproduces request music in the past, it is AUTO-PLAY at a idle state. After pressing a key, push and day-of-the-week assignment actuation are carried out for a desired day-of-the-week key into fixed time amount. Then, after judging it as YES at step S60 of <u>drawing 9</u> noting that automatic song selection playback directions actuation is carried out, it is judged as YES at step S61, and the control section 16 registers the specified day of the week into an internal memory noting that day-of-the-week assignment is carried out into fixed time amount (step S62).

[0047] And the music which had reproduced with reference to the content of storage of the playback hysteresis information storage section 14 at the same day of the week as the appointed day of the week in the music reproduced according to song selection actuation of a user in the past is searched (step S63). Processing of step S63 is performed using the frequency ranking information classified by day of the week memorized by frequency ranking storage area 14classified by day of the week B, and when there are two or more information which specifies music in case there is corresponding music, and corresponding music, the sequence that frequency is high etc. understands it. In addition, it is aimed temporary at all the playback hysteresis former data of playback hysteresis former data storage area 14A when frequency ranking classified by day of the week is not totaled in advance. From the date data or day-of-the-week data in playback hysteresis former data, the music reproduced at the same day of the week as the present day of the week is searched, and it registers with the internal memory (when there is two or more music found out by the retrieval concerned, playback frequency is totaled for every music, and it arranges in order of frequency, and registers with the internal memory).

[0048] It is confirmed whether the control section 16 had one or more music of music which had reproduced based on the retrieval result at the same day of the week as the appointed day of the week following step S63 (step S64). When the appointed day of the week is Monday, like <u>drawing 4</u> , the music of = (the pallet number i, the truck number j) (3 1), (3, 4), (1, 4), (7, 2), and .. corresponds to order with high playback frequency, and it is judged as YES. After registering as H the number of music which had reproduced the control section 16 at the same day of the week as the appointed

day of the week at this time (step S65), the disk playback section 11 is controlled and it is made to reproduce in order with high frequency (steps S66-S76 of <u>drawing 10</u>).

[0049] Namely, exchange for CD 1-3 first, and the music of the truck number 1 is reproduced. If playback of the music of this truck number 1 finishes, the music of the truck number 4 of same CD 1-3 will be reproduced. If playback of the music of this truck number 4 finishes, it will exchange for CD 1-1, and the music of the truck number 4 will be reproduced, and if playback of the music of this truck number 4 finishes, it exchanges for CD 1-7, is made condition of reproducing the music of the truck number 2, and is made to reproduce in order. And a halt command is given to the disk playback section 11, playback actuation is stopped (it is YES and S77 at steps S72 or S75), and this automatic song selection regeneration is finished in the place where it saw in order of frequency at, and playback of the Hth music finished at, or the STOP key was pressed. Thus, since the music reproduced at the day of the week same in the past as the appointed day of the week is automatically chosen in order of frequency and is reproduced, even if a user does not impose the time and effort of song selection actuation at all, he can reproduce order to listen to the music heard at the desired day of the week.

[0050] (4) When a song is selected automatically and you want to reproduce the music reproduced in the request time zone based on playback hysteresis information when a user with automatic song selection playback-time zone assignment selects a song and reproduces request music in the past, it is AUTO-PLAY at a idle state. After pressing a key, push and time zone assignment actuation are carried out for a desired time zone key into fixed time amount. Then, after judging it as YES at step S60 of <u>drawing 9</u> noting that automatic song selection playback directions actuation is carried out, it is judged as YES at step S61, and the control section 16 registers the specified time zone into an internal memory noting that time zone assignment is carried out into fixed time amount (step S62).

[0051] And the music which had reproduced in the same time zone as the appointed time zone with reference to the content of storage of the playback hysteresis information storage section 14 in the music reproduced according to song selection actuation of a user in the past is searched (step S63). Processing of step S63 is performed using the frequency ranking information classified by time zone memorized by frequency ranking storage area 14C classified by time zone, and when there are two or more information which specifies music in case there is corresponding music, and corresponding music, the sequence that frequency is high etc. understands it. In addition, it is aimed temporary at all the playback hysteresis former data of playback hysteresis former data storage area 14A when frequency ranking classified by time zone is not totaled in advance. From the time data (time-of-day data) or time zone data in playback hysteresis former data The music reproduced in the same time zone as the present time zone is searched, and it registers with the internal memory (when

there is two or more music found out by the retrieval concerned, playback frequency is totaled for every music, and it arranges in order of frequency, and registers with the internal memory).

[0052] It is confirmed whether the control section 16 had one or more music of music which had reproduced in the same time zone as the appointed time zone based on the retrieval result following step S63 (step S64). When the appointed time zone is the time zone I of 4:00−11:00, like drawing 6 , the music of = (the pallet number i, the truck number j) (4 6), (4, 3), (1, 4), (6, 4), and .. corresponds to order with high playback frequency, and it is judged as YES. After registering as H the number of music which had reproduced the control section 16 in the same time zone as the appointed time zone at this time (step S65), the disk playback section 11 is controlled and it is made to reproduce in order with high frequency (steps S66−S76 of drawing 10).

[0053] Namely, exchange for CD 1−4 first, and the music of the truck number 6 is reproduced. If playback of the music of this truck number 6 finishes, the music of the truck number 3 of same CD 1−4 will be reproduced. If playback of the music of this truck number 3 finishes, it will exchange for CD 1−1, and the music of the truck number 4 will be reproduced, and if playback of the music of this truck number 4 finishes, it exchanges for CD 1−6, is made condition of reproducing the music of the truck number 4, and is made to reproduce in order. And a halt command is given to the disk playback section 11, playback actuation is stopped (it is YES and S77 at steps S72 or S75), and this automatic song selection regeneration is finished in the place where it saw in order of frequency at, and playback of the Hth music finished at, or the STOP key was pressed. Thus, since the music reproduced in the time zone same in the past as the appointed time zone is automatically chosen in order of frequency and is reproduced, even if a user does not impose the time and effort of song selection actuation at all, he can reproduce order to listen to the music heard in the desired time zone.

[0054] If according to the gestalt of this operation a user carries out selection actuation of various request music to various time zones of various days of the week by actuation of the PLAY key, a skip rise key, and a skip down key and makes them reproduce this request music as explained above, the control section 16 will be registered into the playback hysteresis information storage section 14 in predetermined playback hysteresis information. In this condition, it is AUTO-PLAY. If push automatic song selection playback directions actuation is carried out, a key Since the control section 16 chooses automatically the music reproduced at the day of the week (or time zone) same in the past as current in order of frequency and makes it reproduce with reference to the playback hysteresis information storage section 14 Even if a user does not impose the time and effort of song selection actuation at all, he can reproduce order to listen to the favorite music which suited at the present day of the week (or time zone). Moreover, AUTO-PLAY If assignment

actuation of a request day of the week (or request time zone) is carried out into fixed time amount after carrying out automatic song selection playback directions actuation by actuation of a key Since the control section 16 chooses automatically the music reproduced at the day of the week (or time zone) same in the past as the appointed day of the week (or the appointed time zone) in order of frequency and makes it reproduce with reference to the playback hysteresis information storage section 14 Even if a user does not impose the time and effort of song selection actuation at all, he can reproduce order to listen to the music heard in the desired time zone.

[0055] In the above-mentioned gestalt of operation, in addition, the playback frequency and frequency ranking for every music which were divided according to the day of the week at step S20 of drawing 7 The playback frequency and frequency ranking for every music which matched with the information which specifies music, and frequency ranking storage area 14classified by day of the week B was made to memorize, and was divided according to the time zone are matched with the information which specifies music, and you may make it make frequency ranking storage area 14C classified by time zone memorize them. Moreover, step S20 of drawing 7 is not processed, but it may be made to carry out among steps S80 and S81 of drawing 11 between steps S61 and S62 of drawing 9 among steps S19 and S21.

[0056] Moreover, processing of step S81 of drawing 11 and processing of step S83 are replaced, and it is AUTO-PLAY. If there are no all of day-of-the-week assignment and time zone assignment in fixed time amount after a key is pressed First, the music which has playback hysteresis in the same time zone as a current time zone is searched, and when one does not have the music which corresponds by this retrieval, you may make it search the music which has playback hysteresis in the same time zone as a current day of the week. Moreover, processing of steps S83 and S84 of drawing 11 may be omitted, and step S81 may be changed into the processing which searches the music which had reproduced in a day of the week, the same present day of the week as a time zone, and a present time zone. In this case, the day of the week and the frequency ranking storage area classified by time zone are newly prepared in the playback hysteresis information storage section 14. In processing of step S20 of drawing 7 It is aimed at all the playback historical data of playback hysteresis former data storage area 14A. Divide a day-of-the-week exception and according to a time zone, total the playback frequency for every music, and the day of the week and the frequency ranking storage area classified by time zone are made to memorize the information which specifies the music arranged in order of frequency. At step S81 after modification [whether it is made to perform processing which searches the music which had reproduced in a day of the week, the same current day of the week as a time zone, and a current time zone for the content of storage of the day of the week and the frequency ranking storage area classified by time zone concerned, and] Or it is aimed at all the playback hysteresis former data of playback hysteresis former

data storage area 14A. Date data, time data, or day-of-the-week data and time data in playback hysteresis former data, or from date data, time zone data or day-of-the-week data, and time zone data It may be made to perform processing which searches the music reproduced in a day of the week, the same present day of the week as a time zone, and a present time zone (when there is two or more music found out by retrieval, playback frequency is totaled for every music, and it arranges in order of frequency, and registers with an internal memory).

[0057] Moreover, when it changes into the processing which confirms whether day-of-the-week assignment was carried out by the day-of-the-week key, and time zone assignment was carried out by the time zone key into fixed time amount in processing of step S61 of drawing 9 and is set to YES, The appointed day of the week and the appointed time zone are registered into an internal memory, and you may make it search with step S62 the music which had reproduced in the appointed day of the week, the same day of the week as the appointed time zone, and the time zone at step S63. Also in this case, the day of the week and the frequency ranking storage area classified by time zone are prepared in the playback hysteresis information storage section 14. In processing of step S20 of drawing 7 It is aimed at all the playback historical data of playback hysteresis former data storage area 14A. Divide a day-of-the-week exception and according to a time zone, total the playback frequency for every music, and the day of the week and the frequency ranking storage area classified by time zone are made to memorize the information which arranges in order of frequency and specifies music. At step S63 after modification or [that it is made to perform processing which searches the music which had reproduced in a day of the week, the same current day of the week as a time zone, and a current time zone for the content of storage of a day of the week and the frequency ranking storage area classified by time zone] -- or It is aimed at all the playback hysteresis former data of playback hysteresis former data storage area 14A. Date data, time data, or day-of-the-week data and time data in playback hysteresis former data, or from date data, time zone data or day-of-the-week data, and time zone data It may be made to perform processing which searches the music reproduced in a day of the week, the same present day of the week as a time zone, and a present time zone (when there is two or more music found out by retrieval, playback frequency is totaled for every music, and it arranges in order of frequency, and registers with an internal memory).

[0058] Furthermore, although it was made to perform selection actuation of request music using the PLAY key, the skip rise key, and the skip down key, it may be made to perform song selection playback of request music using a program regenerative function. Moreover, although CD was mentioned as the example and the above-mentioned gestalt of operation explained it as an are recording medium, when using the are recording medium of other classes, such as MD and DVD, it can apply similarly.

[0059]

[Effect of the Invention] If selection actuation of request music is carried out with the selection actuation means, since selection playback of the music which, after that, only directs automatic song selection playback, and was reproduced in the same time zone as the day of the week and the present as the present when it is the same in the past will be automatically carried out for a while at first according to this invention, the favorite music which suited in a present day of the week and a present time zone can be reproduced simply. Moreover, if the request day of the week and the time zone are specified in case automatic song selection playback is directed, since selection playback of the music reproduced in the same time zone as the day of the week and assignment as assignment that it is the same in the past will be carried out automatically, the favorite music suitable for the present temper can be reproduced simply.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram of the changer type CD player concerning the gestalt of one operation of this invention.

[Drawing 2] It is the explanatory view of the content of storage of a playback hysteresis former data storage area among the playback hysteresis information storage sections of drawing 1 .

[Drawing 3] It is the explanatory view of the content of storage of the frequency ranking storage area classified by day of the week among the playback hysteresis information storage sections of drawing 1 .

[Drawing 4] It is the explanatory view of the content of storage of the frequency ranking storage area classified by day of the week among the playback hysteresis information storage sections of drawing 1 .

[Drawing 5] It is the explanatory view of the content of storage of the frequency ranking storage area classified by time zone among the playback hysteresis information storage sections of drawing 1 .

[Drawing 6] It is the explanatory view of the content of storage of the frequency ranking storage area classified by time zone among the playback hysteresis information storage sections of drawing 1 .

[Drawing 7] It is the flow chart which shows the playback control processing by the control section of drawing 1 .

[Drawing 8] It is the flow chart which shows the playback control processing by the control section of drawing 1 .

[Drawing 9] It is the flow chart which shows the playback control processing by the control section of drawing 1 .

[Drawing 10] It is the flow chart which shows the playback control processing by the control section of drawing 1 .

[Drawing 11] It is the flow chart which shows the playback control processing by the control section of drawing 1 .

[Drawing 12] It is the explanatory view of the record-medium stowage of a changer type regenerative apparatus.

[Drawing 13] It is the explanatory view of the content of storage of the program information storage section of a changer type regenerative apparatus.

[Description of Notations]

10 Disk Stowage 11 Disk Playback Section

12 Changer Section 13 Timer Section

14 Playback Hysteresis Information Storage Section 15 Control Unit

16 Control Section

1-1 - 1-n CD